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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
MEDINA SANABRIA, MARIBEL	
ART UNIT	**PAPER NUMBER**
1754	

DATE MAILED: 02/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/937,885	SU ET AL.	
	Examiner	Art Unit	
	Maribel Medina	1754	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 October 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 11/2/2001; 3/11/2002; 12/30/2002
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Information Disclosure Statement

1. The reference WO 99/06185 on the information disclosure statement filed on 3/11/2002 fails to comply with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609 because the reference is not related to the instantly claimed invention the reference is directed to "Sockets for a Ratchet Wrench". It has been placed in the application file, but the information referred to therein has not been considered as to the merits. Applicant is advised that the date of any re-submission of any item of information contained in this information disclosure statement or the submission of any missing element(s) will be the date of submission for purposes of determining compliance with the requirements based on the time of filing the statement, including all certification requirements for statements under 37 CFR 1.97(e). See MPEP § 609 ¶ C(1).

Claim Objections

2. Claims 4, 5 and 13 are objected to because of the following informalities:

   a. In claims 4 and 13, 4th line of each before "alkaline absorption" --an-- should be inserted.

   b. In claim 5, 4th line, before "carbon dioxide adsorbent", --a-- should be inserted.

   Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 3, 8 and 17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a. Claim 3 recites the limitation "said selective oxidation step" in the 4th line of the claim. There is insufficient antecedent basis for this limitation in the claim. No "selective oxidation step" is recited in claims 1 or 3, proper antecedent basis appear in claim 2.

b. Claims 8 and 17 recite the limitation "the cooling". There is insufficient antecedent basis for this limitation in the claims. No "cooling" step is recited in claim 1, 7, 8, 10, 16, and 17.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 3, 4, 5, 10, 13, 14 and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent No. 4,725,381 (Pinto).

Regarding claims 1 and 19, Pinto discloses a method for producing hydrogen by gasification of combustibles (See col. 1, lines 60-67), said method comprising a gasification step and a gas processing step. The gas processing step comprises: a gas scrubbing step for absorbing and removing dust and a trace amount of acid gases in the produced gas obtained in said gasification step (see col. 3 lines 1-10); and a carbon monoxide adsorption step for adsorbing and

separating carbon monoxide by bringing the produced gas scrubbed in said gas scrubbing step into contact with a carbon monoxide adsorbent (See col. 2, lines 15-20 and col. 6, lines 17-26).

Regarding claim 3, Pinto discloses carrying a shift reaction step for converting carbon monoxide and steam in the produced gas into hydrogen gas and carbon dioxide by a catalytic reaction, after said gas scrubbing step (See col. 2, lines 1-5 and col. 10 lines 5-15).

Regarding claim 4, Pinto discloses a carbon dioxide chemical absorption step for absorbing and separating carbon dioxide in the produced gas by bringing the produced gas into contact with an alkaline absorption solution, before said carbon monoxide adsorption step (See col. 9, lines 60-67 and col. 11, lines 43-65).

Regarding claim 5, Pinto discloses a carbon dioxide adsorption step for adsorbing and separating carbon dioxide in the produced gas by bringing the produced gas into contact with a carbon dioxide adsorbent, before said carbon monoxide adsorption step (See col. 6, lines 15-19 and col. 7, lines 62-66).

Regarding claim 10, Pinto discloses a hydrogen production apparatus comprising: a gasification furnace (14); and a gas processing apparatus. The gas processing apparatus comprising: a scrubbing tower (20); and a carbon monoxide adsorption tower (58).

Regarding claim 13, Pinto discloses a carbon dioxide absorption tower (24) provided upstream of said carbon monoxide adsorption tower.

Regarding claim 14, Pinto discloses a carbon dioxide adsorption tower (58) provided upstream of said carbon monoxide adsorption tower (See col. 10, lines 28-40).

No difference is seen between the instantly claimed invention and Pinto's disclosure.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 2, 7, 9, 11, 16, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pinto as applied to claims 1, 3, 4, 5, 10, 13, 14 and 19 above, and further in view of US Patent No. 5,658,681 (Sato et al).

Pinto applies herein as above.

In regards to claims 2, 11,and 12 Pinto fails to disclose "a selective oxidation step" and a "selective oxidation reactor" for selectively oxidizing carbon monoxide in the produced gas by a catalytic reaction with an oxygen-containing gas.

Sato et al is relied upon to teach a process for producing hydrogen wherein a carbonaceous material is passed trough a gasifier; a reformer, a shift reactor and a selective oxidation reactor (See Fig.1, and col. 3, line 35 to col. 4, line 47).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have added the additional step of "selective oxidation" and the additional "selective oxidation reactor" to the method and apparatus of Pinto, as taught by Sato et al, in order to achieve a better yield of hydrogen in the hydrogen product stream of Pinto, and since Sato et al disclose that it is well known in the art to use a selective oxidation reactor after a waster gas shift reactor.

In regards to claims 7, 9, 16 and 18 Pinto fails to disclose the use of the hydrogen produced in his process in a power generating method by supplying the hydrogen produced into a fuel cell.

Sato et al is relied upon to teach producing hydrogen, wherein a carbonaceous material is passed trough a gasifier; a reformer, a shift reactor; a selective oxidation reactor; and passing the hydrogen produced therein to a fuel cell (See Fig.1, and col. 3, line 35 to col. 4, line 47).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have supplied the hydrogen produced in Pinto to a fuel cell, since Sato et al discloses that it is well known in the art to supply hydrogen, produced by a process comprising gasification and carbon monoxide gas shift reaction, into a fuel cell to generate power.

9. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pinto in view of US Patent No. 5,658,681 (Sato et al).

Pinto applies herein as above.

In regards to claim 20 Pinto fails to disclose supplying the hydrogen produced into a fuel cell.

Sato et al is relied upon to teach producing hydrogen, wherein a carbonaceous a material is passed trough a gasifier; a reformer, a shift reactor; a selective oxidation reactor; and passing the hydrogen produced therein to a fuel cell (See Fig.1, and col. 3, line 35 to col. 4, line 47).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have supplied the hydrogen produced in Pinto into a fuel cell, since Sato et al discloses that it is well known in the art to supply hydrogen, produced by a process comprising gasification and carbon monoxide gas shift reaction, into a fuel cell.

10. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pinto in view of US Patent No. 4,444,727 (Yanagihara et al).

Pinto discloses a method for producing hydrogen by gasification of combustibles (See col. 1, lines 60-67), said method comprising a gasification step and a gas processing step. The gas processing step comprises: a gas scrubbing step for absorbing and removing dust and a trace amount of acid gases in the produced gas obtained in said gasification step (see col. 3 lines 1-10); a carbon dioxide chemical absorption step for absorbing and separating carbon dioxide in the produced gas by bringing the produced gas into contact with and alkaline absorption solution, (See col. 9, lines 60-67 and col. 11, lines 43-65); and a carbon monoxide adsorption step for adsorbing and separating carbon monoxide by bringing the produced gas scrubbed ins aid gas scrubbing step into contact with a carbon monoxide adsorbent (See col. 2, lines 15-20 and col. 6, lines 17-26).

Pinto discloses the instantly claimed invention; however fails to disclose the use of a hydrogen-absorbing alloy as the hydrogen purification means to separate the nitrogen, and argon from the hydrogen-containing gas.

Yanagihara et al is relied upon to teach a hydrogen gas purification system for separating contaminants such as nitrogen and argon from a hydrogen-containing gas (See col. 1, lines 7-28) wherein a hydrogen-absorbing alloy is used as the means to separate such contaminants and obtain a high purity hydrogen-containing gas.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the hydrogen-absorbing alloy of Yanagihara et al in Pinto's method since

Yanagihara et al disclose that the hydrogen-absorbing alloy system is known to be used in order to obtain a better yield of hydrogen-containing gas streams.

11. Claims 6, 8, 15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pinto as applied to claims 1, 3, 4, 5, 10, 13, 14 and 19 above, and further in view of US Patent US Patent No. 4,444,727 (Yanagihara et al).

Pinto discloses the instantly claimed invention; however fails to disclose the use of a hydrogen-absorbing alloy as the hydrogen purification means to separate the nitrogen, and argon from the hydrogen-containing gas.

Yanagihara et al is relied upon to teach a hydrogen gas purification system for separating contaminants such as nitrogen and argon from a hydrogen-containing gas (See col. 1, lines 7-28) wherein a hydrogen-absorbing alloy is used as the means to separate such contaminants and obtain a high purity hydrogen-containing gas.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the hydrogen-absorbing alloy of Yanagihara et al in Pinto's method since Yanagihara et al disclose that the hydrogen-absorbing alloy system is known to be used in order to obtain a better yield of hydrogen-containing gas streams.

In regards to the limitation of claims 8 and 17 that reads " wherein exhaust heat recovered by the cooling of said fuel cell is utilized as a heat source for hydrogen desorption in said hydrogen-absorbing alloy" it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the heat generated by the fuel cell to desorb the hydrogen from the hydrogen-absorbing alloy, since this is a well known heat transfer technique.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Maribel Medina whose telephone number is (571) 272-1355. The examiner can normally be reached on Monday through Friday from 7:30 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on (571) 272-1358. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-0994.

Maribel Medina
Examiner
Art Unit 1754